

## REMARKS

Reconsideration of the application is respectfully requested for the following reasons:

1. Amendments to Specification and Drawings

The substitute specification includes the following changes:

- the word “can” is deleted on page 1, last 3 line of the background of the invention, as suggested in item 2(a) on page 2 of the Official Action, and
- spaces are added between a word and a number by changing “*Figure1, Step1*” to “*Figure 1, Step 1*” etc, throughout the specification as suggested in item 2(b) on page 2 of the Official Action.

In addition, the claims have been amended by adding spaces between the word “Claim” and the number of the claim, for example by changing “Claim1” to –Claim 1–.

Because the changes are all formal in nature, it is respectfully submitted that they do not involve “new matter.”

2. Rejection of Claims 1-2 Under 35 USC §102(a) in view of Admitted Prior Art (AAPA)

This rejection is respectfully traversed on the grounds that Applicant does not admit that the following step is prior art:

- “*detecting, by using an exchange, in a **legal subscriber address table** whether there is a matching item corresponding to the source Medium Access Control (MAC) and the source Internet Protocol (IP) address involved in an Address Resolution Protocol (ARP) packet which is sent from a subscriber terminal*” ***before allowing or forbidding a subscriber to access a network.***

Instead, the admitted prior art is to establish an ARP item in an ARP table as soon as an ARP packet is received from a subscriber, thereby permitting the sender of the packet to use the corresponding IP address. In the prior art, if the sender of the packet requesting use of the IP

address is not a legal subscriber, the IP address and source MAC address can still be added to the ARP table with the result that the legal subscriber will be prevented from using the address because there is no pre-check to determine if the subscriber is legal.

Nowhere does the background section of the specification admit that the use of a legal subscriber address table to verify the MAC of an ARP packet before permitting network access. The Examiner will note that claim 1 specifically recites that the source IP address and the source MAC address involved in the ARP packet are added to the **ARP table**, thereby permitting use of the network, *only* if the MAC and IP address match entries in the ***legal subscriber address table***, and that the packet is otherwise discarded. The background section of the specification only describes the manner in which the source IP address and source MAC address are used to gain access to the network via the ARP table, as opposed to the inclusion of a different table, the legal subscriber address table, to verify the IP address and source MAC address before modifying the ARP table.

As explained in lines 2-6 of the last paragraph of the description of the admitted prior art: *“At present, the problem of IP address cheating is dealt with as follow: during bootstrap, the computer system of a subscriber terminal sends out a charge-free ARP (Address Resolution Protocol) packet to check whether its IP address has been occupied; if so, the computer system will send out an address contention report.”* While this might prevent cheating in certain circumstances, it cannot totally solve the problem of IP address cheating.

In the admitted prior art system, if a subscriber terminal requests access to a network, the subscriber terminal will first broadcast an ARP packet to find out the address of the gateway. The broadcast ARP packet carries the IP address of the gateway, the IP address as well as the MAC address of the subscriber terminal. Upon receiving the ARP packet, the gateway will refresh an ARP table by using the IP address as well as the MAC address of the subscriber terminal in the received ARP packet and, at the same time, the gateway will send an ARP response packet to the subscriber terminal. Then the subscriber can use the network resources normally. However, if

an illegal subscriber wishes to use an IP address which has already been allocated to a legal subscriber to access a network, the gateway receives an ARP packet from the illegal subscriber at first, the gateway will establish an ARP item of the illegal subscriber in the ARP table since no legal check about subscribers is performed. As a result, the legal subscriber will be unable to access the network.

This problem is solved, in accordance with the technical solution recited in Claim 1 of the present application, by “*detecting, by using an exchange, in a **legal subscriber address table** whether there is a matching item corresponding to the source Medium Access Control (MAC) and the source Internet Protocol (IP) address involved in an Address Resolution Protocol (ARP) packet which is sent from a subscriber terminal*” before allowing or forbidding a subscriber to access a network. As explained in lines 1-4 of the fourth paragraph of the Detailed Description of the Invention: “*At Step 2, the exchange checks the MAC address and the IP address in the ARP packet, i.e., determines whether there is a matching item in the **legal subscriber address table**. If there is a matching item, it shows that **the subscriber terminal has obtained the IP address legally via the DHCP relay.***” Further, as explained in lines 4-5 of the third-to-last paragraph of the Detailed Description of the Invention, the legal subscriber address table is used to set: “*a static item. . . for a static IP address in the **legal subscribe address table**,*” and therefore it can be seen that the **legal subscriber address table** of the invention is used for recording address information of all the legal subscribers no matter adopting a dynamic address or a static address. If there is a matching item in the legal subscriber address table, the subscriber which sends an ARP packet for accessing a network can use network resources normally; if there is no matching item in the legal subscriber address table, the subscriber which requests to access the network will be determined as illegal.

Because of the pre-check using a “**legal subscriber address table**” to see if the source MAC is really entitled to the requested IP address, the illegal subscriber is positively prevented from establishing an ARP item in the **ARP table**. This is a distinguishing feature of the invention, and it is positively recited in claim 1. Therefore, the rejection of claim 1 based on

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admitted prior art is improper and should be withdrawn. Since claims 2 depends from claim 1, it should be patentable for the same reasons. It is noted that claims 3-7 have already been indicated as allowable.

Having thus overcome each of the rejections made in the Official Action, withdrawal of the rejections and expedited passage of the application to issue is requested.

Respectfully submitted,

BACON & THOMAS, PLLC

A handwritten signature in black ink, appearing to be 'B. Urcia', with a long horizontal line extending to the right.

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